

NOTES ICHTYOLOGIQUES

THREE NEW RECORDS OF BATHYAL FISH SPECIES FROM THE PORTUGUESE SLOPE: NOTES ON THEIR MORPHOLOGY AND DISTRIBUTION. Afonso Marques, Universidade de Lisboa Estrada do Guincho, Faculdade de Ciências, Laboratório Marítimo da Guia, IMAR, 2750 Cascais, PORTUGAL, and Luiz Saldanha (†).

ABSTRACT. - *Dysomma brevirostre* (Facciola, 1887) (Synphobranchidae), *Gadomus dispar* (Vaillant, 1888) (Macrouridae) and *Setarches guentheri* Johnson, 1862 (Scorpaenidae), are rare bathyal species now recorded for the Portuguese slope. Apart from their new northern limit of distribution, other morphological and biological aspects are discussed. The number of lateral line pores and dentition of *Dysomma brevirostre* are discussed and the lateral line of *Gadomus dispar* is described. The specimen of *Setarches guentheri* is the largest and the deepest recorded so far.

RÉSUMÉ. - Trois nouveaux signalements de poissons bathyaux sur la pente continentale au large du Portugal: notes sur leur morphologie et leur répartition.

Dysomma brevirostre (Facciola, 1887) (Synphobranchidae), *Gadomus dispar* (Vaillant, 1888) (Macrouridae) et *Setarches guentheri* Johnson, 1862 (Scorpaenidae) sont des espèces rares du domaine bathyal et sont signalées ici, pour la première fois, sur la pente continentale du Portugal. Les limites de distribution et les caractéristiques biologiques sont révisées. Le nombre de pores de la ligne latérale et la dentition de *Dysomma brevirostre* sont discutés, et la ligne latérale de *Gadomus dispar* est décrite. Le spécimen de *Setarches guentheri* est le plus grand jamais capturé, et à une profondeur jamais atteinte pour cette espèce.

Key-words. - Synphobranchidae, *Dysomma brevirostre*, Macrouridae, *Gadomus dispar*, Scorpaenidae, *Setarches guentheri*, ANE, Portugal, New records, Distribution.

The Portuguese slope has been studied over the past years not only for fisheries purposes (stock assessment of commercial fish and crusta-

ceans) but also to get an overall view of ecological aspects of the area. Following this study some fish species have been identified as new potential fisheries resources (e.g., *Hoplostethus mediterraneus*) and some species have been reported as new to the area (Saldanha *et al.*, 1995). Consequently, three rare bathyal fish species are here recorded, for the first time, in Portuguese waters.

Materials and Methods

Specimens were collected during the «Deep Resources Cruises» of Instituto Português de Investigação Marinha (IPIMAR) in January and December 1995, along the slope of Algarve, with a commercial otter trawl (35 mm shrimp net, mouth opening of 2.2 m high and 23 m wide), towed at 2 knot speed by the oceanographic vessel «Noruega».

Only one specimen of each species was caught and they now form part of the Museu Municipal do Funchal (MMF) collection. For each, we give only the relevant data concerning morphological and meristic variability, as well as geographical and depth distribution.

Vertebral counts were based on X-ray examination. Measurements were made to the nearest millimeter.

Abbreviations. - Standard Symbolic Codes for Institutional Resource Collections in Herpetology and Ichthyology (Leviton *et al.*, 1985).

Results and Discussion

***Dysomma brevirostre* (Facciola, 1887) (Synphobranchidae)**

Studied material. - 1 spec., 36°40'N; 07°48'W, Dec. 1995, 750 m (MMF n°27116).

Body proportions. - In percentage of total length (245 mm): eye diameter 0.4, snout length 1.6, gape 2.8, head length (to anterior margin of gill opening) 7.0, snout tip to dorsal-fin origin 10.6, snout tip to anus 18.4, depth at gill opening 2.8, depth at anus 2.5.

Remarks. - Only seven specimens of this synphobranchid eel have been collected and studied until now: the Facciola specimen (1887), from Sicily (original description) that is lost; the Florida specimen, collected in 1962 by Böhlke and Robins, ANSP 108623 (1, 209); the Madeiran specimen, MMF n°13874A, taken from the stomach of an *Aphanopus carbo* and studied by Blache *et al.*, in 1970; the two Catalanian Sea specimens of Stefanescu *et al.* (1990), IIPB 189/90 and IIPB

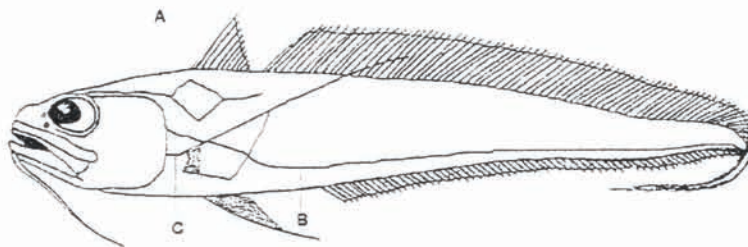


Fig. 1. - Lateral line system of *Gadomus dispar*. A: Cephalic and dorsal branch. B: Ventral branch. C: Pectoral fin peduncle branch. Opercle and preopercle bones, scales and pectoral finrays were not drawn in order to expose the lateral line system (fish outline from Vaillant, 1888).

190/90; the Hawaiian specimen (Smith and Castle, 1981) and the herein studied specimen from the Algarve slope.

The specimen from off Florida (Miami), reported by Böhlke and Robins (1968) in Robins and Robins (1970, 1989), was an adult of 209 mm (TL), collected on the 26 September 1962 at 25°31'30"N, 79°57'56"W, 351 m deep. Its general description agrees with Supino (1905) and Grassi (1913). These authors anticipated a wide, if patchy, distribution for this small eel.

Blache *et al.* (1970) described one adult of *Dysomma brevirostre* collected inside the stomach of an *Aphanopus carbo*, caught by fishermen near Funchal (Madeira archipelago) in May 1958. This was the first report of the species in the eastern Atlantic. The depth of this catch was not registered at the time, but authors assumed it to be around 600–1000 m, since this is the known bathymetric range of *A. carbo*. These authors also reported larval forms off Gabon and Angola. In the Mediterranean Sea, larval forms were identified by Grassi (Smith, 1974) and two adult specimens were collected in the Catalanian Sea (Western Mediterranean Sea), 566 and 561 m deep (Stefanescu *et al.*, 1990).

Morphological and meristic data by Supino (1905), Grassi (1913), Böhlke and Robins (1968) and Blache *et al.* (1970) applies to the Algarve specimen. However, this specimen presents a slight variability of some characteristics such as the number of the lateral line pores, the existence of small teeth along the jaws and also in the number of vertebrae counts.

Supino (1905), Grassi (1913) and Böhlke and Robins (1968) counted on the lateral line 10

pores in each side in an asymmetrical disposition, Blache *et al.* (1970) refer only eight. Our specimen has asymmetrical lateral lines and pores which get scarcer from head to tail tip. Nevertheless, 11 pores on the left side and 13 on the right side communicating by subcutaneous tubes are conspicuous. The two most posterior pores of both sides do not intercommunicate. In our specimen, the dorsal fin origin is at the level of the 9th lateral line pore of the left side.

Facciola (1888) and Grassi (1913) did not find any small teeth along the jaws, while Böhlke and Robins (1968) found them on the lower jaw only. Supino (1905), Blache *et al.* (1970), and Saldanha and Bauchot (1986) observed little teeth on both jaws.

The upper jaw of our specimen presents a pair of premaxillary teeth and a median row of five, enlarged, spaced caniniform teeth on the vomer, followed by a row of tiny teeth. The maxillaries bear a row of minute closely set teeth. The lower jaw has three lateral canines anteriorly, followed by a row of minute close-set teeth like those of the upper jaw, which are difficult to observe.

Blache *et al.* (1970) gave a range of 190–205 vertebrae and our specimen has 187.

Distribution. - *Dysomma brevirostre* (Facciola, 1887) is known from the western Mediterranean Sea (Sicily), south coast of Portugal and Madeira in the eastern north Atlantic, Miami region of Florida in the western north Atlantic and Hawaii in the central Pacific. Larva of this species have been found off Cabinda, Congo and Gabon in the eastern south Atlantic. Inhabits depths between 350 and 750 m.

Gadomus dispar (Vaillant, 1888)
(Macrouridae)

Studied material. - 1 spec., 36°47.6'N; 09°19.9'W, Jan. 1995, 830 m (MMF n°27117).

Body proportions. - In percentage of total length (291 mm): head length, 17.1; snout, 4.1; eye diameter, 5.0; interorbital length, 3.0; barbel, 14.9. Preanal vertebrae: 15. Fin meristics (DII, 8; P18; V8) and body morphology agrees with Vaillant, except that the 2nd dorsal spine is much longer than the subsequent soft rays and the lateral line is visible. Holotype MNHN 1886-551.

Remarks. - The lateral line system of *Gadomus dispar* is rather indistinct, without enlarged scales, unpigmented and comprised of three branches (Fig. 1). The dorsal branch is the continuation of the cephalic system and begins near the occipital crest, behind the upper margin of the eye. At the level of the posterior margin of the opercle it divides in two and takes a rhombic shape converging to a single line that ends a little further than the beginning of the 2nd dorsal fin. The ventral branch begins at the level of the posterior margin of the opercle, at mid-height of the body, slopes down and reach the level of the lower insertion of the pectoral fin and then runs along the ventral margin of the body. A third branch runs along the upper margin of the pectoral fin peduncle in connection with its enlarged first finray.

Distribution. - In the eastern Atlantic the only known record was from off Morocco (Fowler, 1936). This record corresponds to the specimen caught during the «Talisman» expedition in 1883, on soft bottom, at 1105 m deep, off Mazaghan. The present distribution includes the south coast of Portugal and off Morocco in the eastern north Atlantic, the Gulf of Mexico and Caribbean in the tropical western north Atlantic, and off Nicaragua on the north-eastern coast of South America.

Setarches guentheri Johnson, 1862
(Scorpaenidae)

Studied material. - 1 spec., 37°18'N; 09°17'W, Dec. 1995, 870 m (MMF n°27118), 270 mm TL.

Body proportions. - In percentage of standard length (222 mm): head length, 41.8; jaw length, 20.4; eye diameter, 7.2; preorbital length, 13.2; postorbital length, 20.0; dorsal fin length, 46.1; anal fin length, 10.6; pectoral fin length, 11.3; anal fin length, 19.6; pectoral fin length, 30.1; pelvic fin length, 18.5; predorsal distance,

39.6; preanal distance, 72.5; prepectoral distance, 40.2; prepelvic distance, 37.5; body height, 29.5. meristics: D(XII,10); P(1s,19b,3s); V(1,6); A(3,6); C18. Gill rakers: hypobranchial arch, 0; ceratobranchial arch, 9; epibranchial arch, 2. More than 80 scales along body and 52 in maximum height. Live colour was blood red with a black blotch on the most anterior part of pectoral and pelvic fins. This black area spreads along belly and reaches anal zone.

Remarks. - All morphometric data agrees with those of previous authors (Schneider, 1990; Eschmeyer and Dempster, 1990). The total length, was known to reach 240 mm. Our specimen, the largest recorded until now, measures 270 mm. Holotype BMNH no.1881.10.20.4 is from Madeiran waters.

Distribution. - Even through distributed worldwide (Hureau and Litvinenko, 1986) this is a rare bathydemersal scorpaenid (Eschmeyer, 1986), occurring on or over soft bottom, and feeding mostly on pelagic organisms (Eschmeyer and Dempster, 1990).

This species has been reported in the CLOFAM area in Madeira and off Morocco and it is now recorded from off the Portuguese west coast. In the western Atlantic it occurs from 39° 57'N to northern Brazil and is the only species of the genus inhabiting the African tropical Atlantic (Blache *et al.*, 1970). In the Pacific Ocean, Japan, Western Australia, Fiji, Hawaii, Indo-Australian Archipelago and the Philippines; in the Indian Ocean, from Natal to Zanzibar, western coast of India, Sri Lanka, Bay of Bengal and Andaman Sea.

Setarches guentheri is the only species of the genus known both in the CLOFAM and CLOFETA areas.

Our specimen was caught at 870 m deep, which is the species deepest record so far.

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